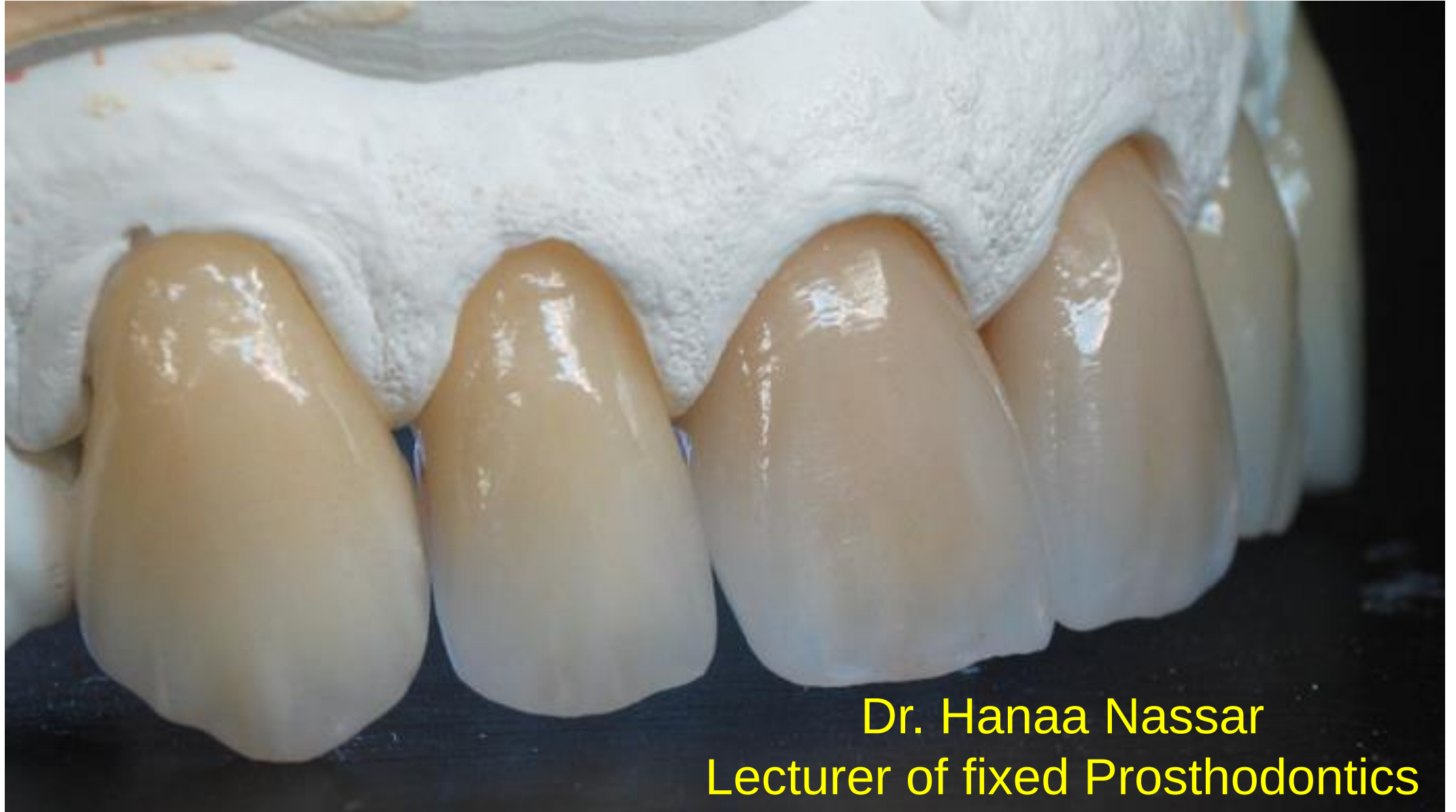
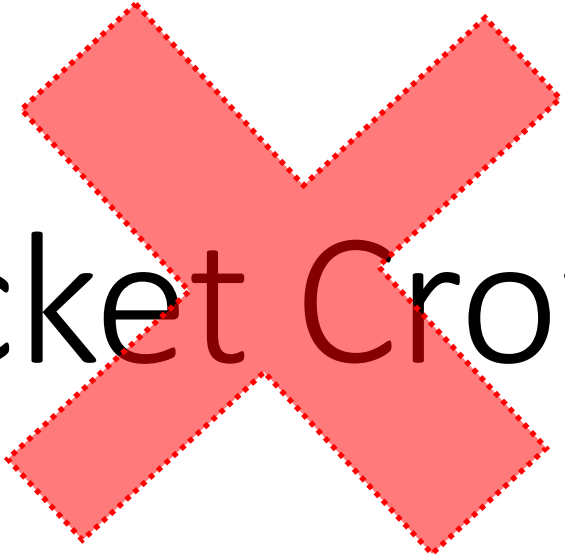


All-Ceramic Crown Preparation



- It's a **full coverage ceramic** artificial restoration that restores the coronal portion of the tooth for function, aesthetic, contour and anatomy



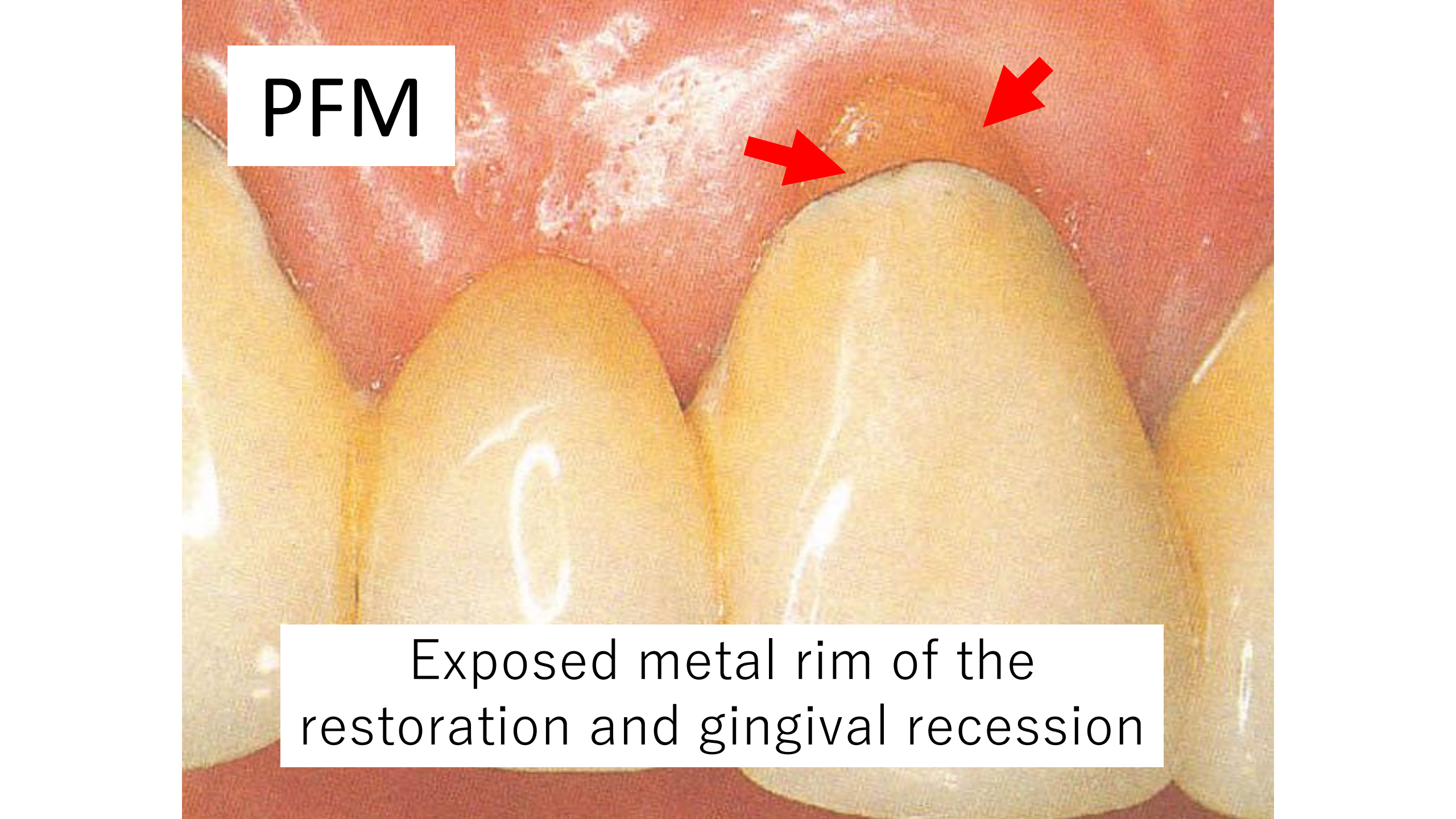
Jacket Crown

All Ceramic Crown

Advantages



1. Superior Aesthetics



PFM

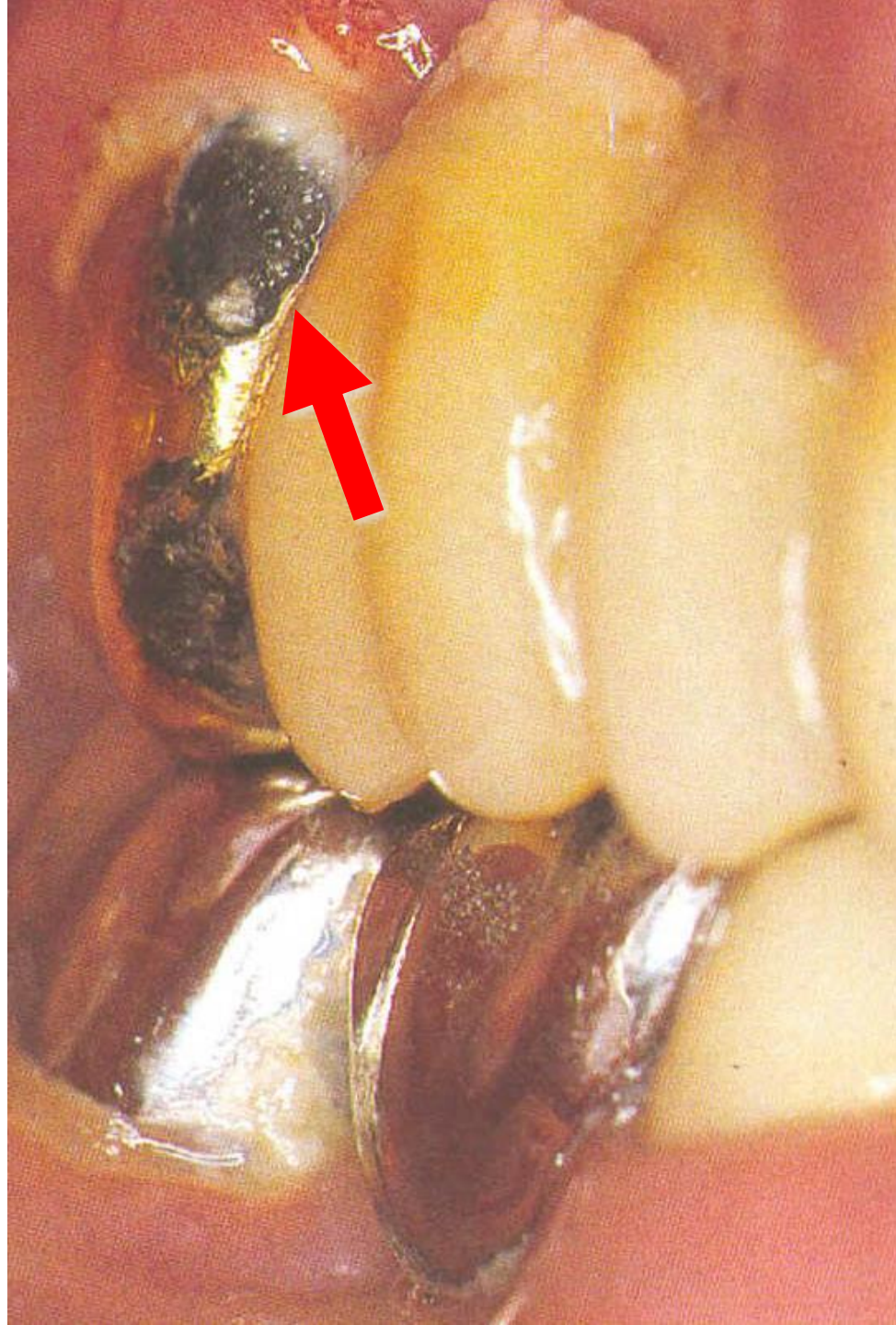
This clinical photograph shows a close-up of a maxillary anterior tooth with a Porcelain-Fused-to-Metal (PFM) restoration. The gingiva is significantly recessed, exposing the metal rim of the crown. Two red arrows point to the exposed metal rim and the adjacent gingival tissue. The restoration has a yellowish-brown metal core and a light-colored porcelain veneer. The surrounding gingiva is red and inflamed.

Exposed metal rim of the restoration and gingival recession

2. High retention and resistance
why...? (full coverage
restoration)



3. Biocompatible

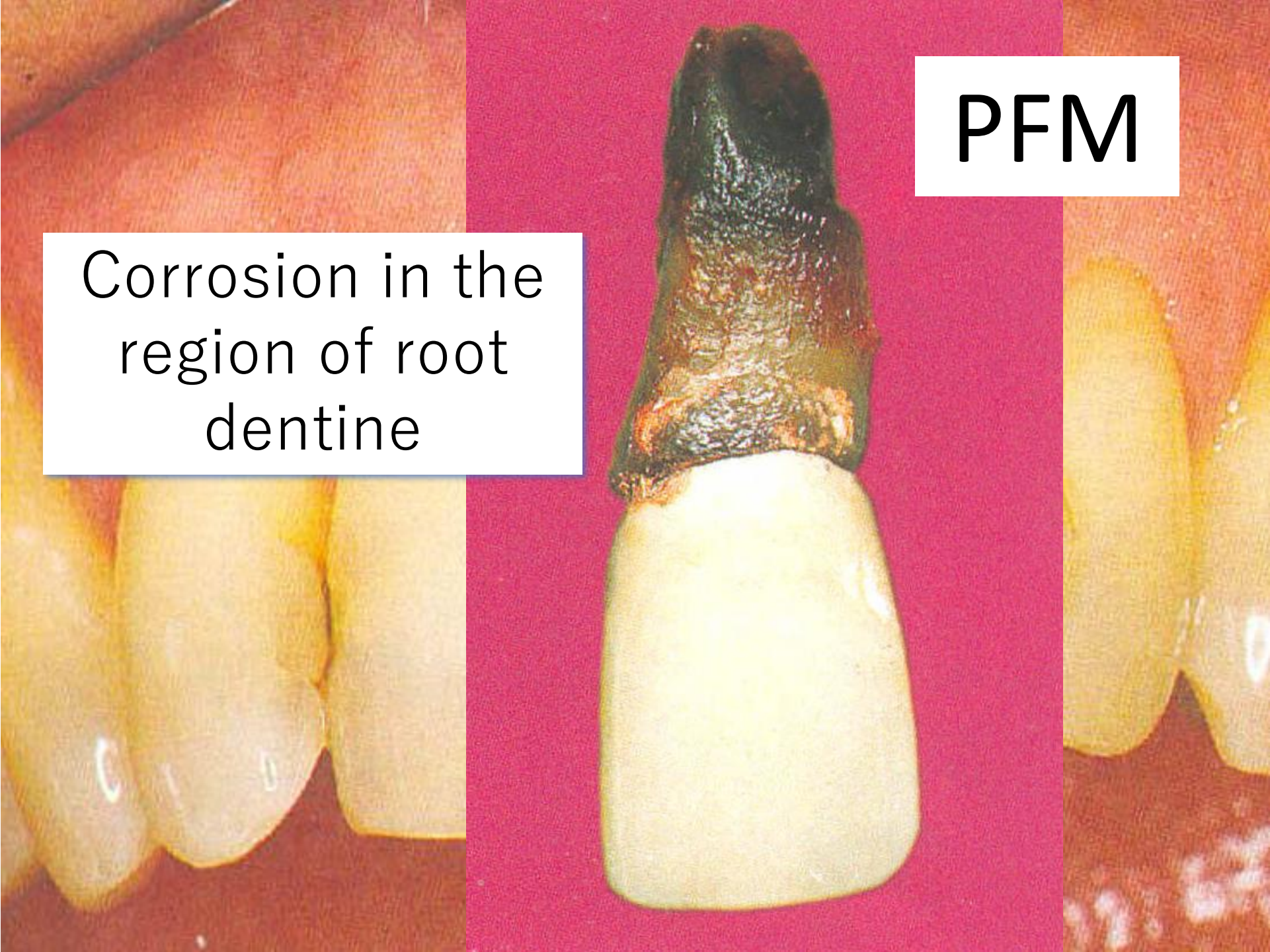


PFM

Corrosion on the
metal surface

PFM

Corrosion in the
region of root
dentine



- 4. More conservative facial reduction than metal-ceramic restoration
- 5. High color stability
- 6. Accept color modification by colored luting agents
- 7. Allow modification of axial contour



Natural
translucency
simulating
natural teeth



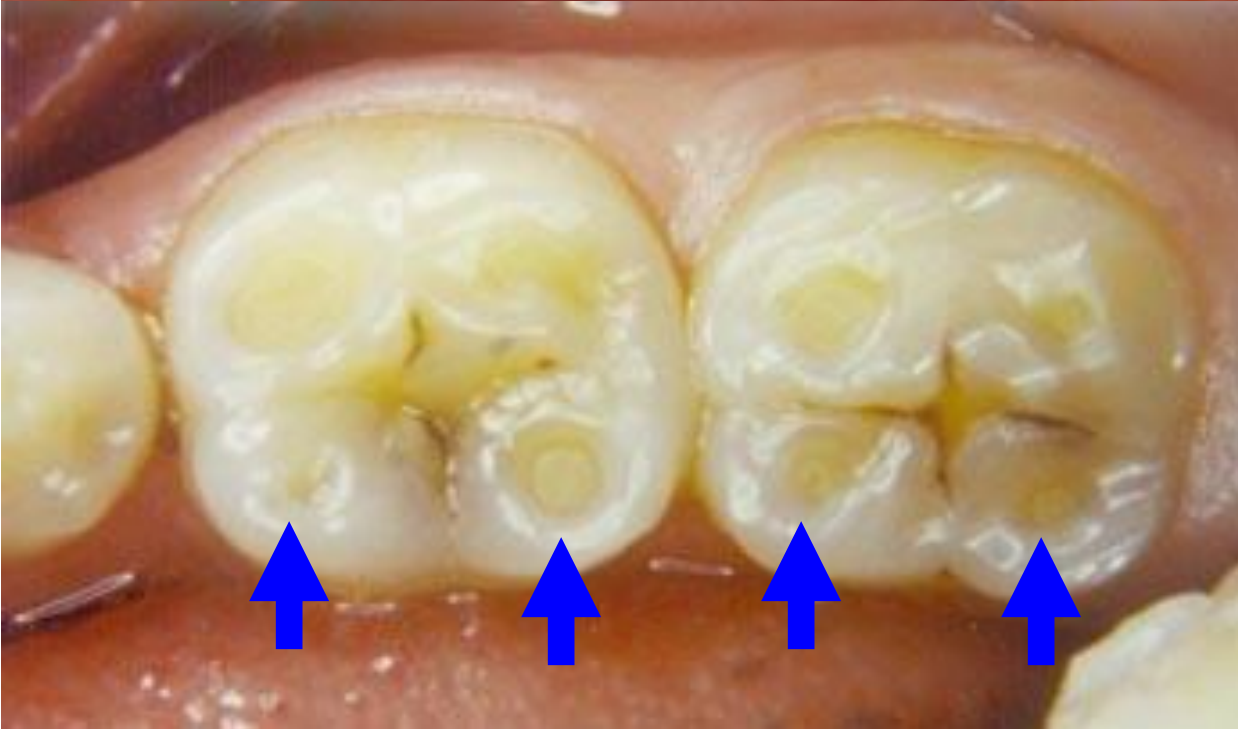
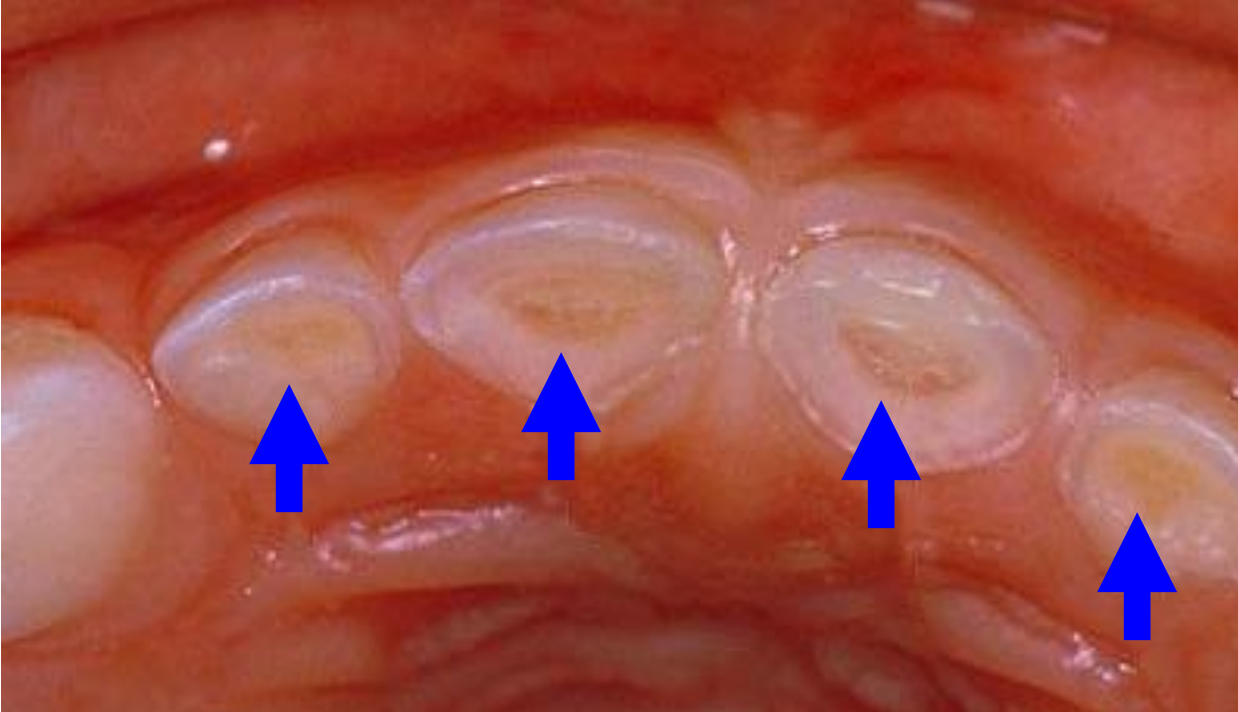


Disadvantages

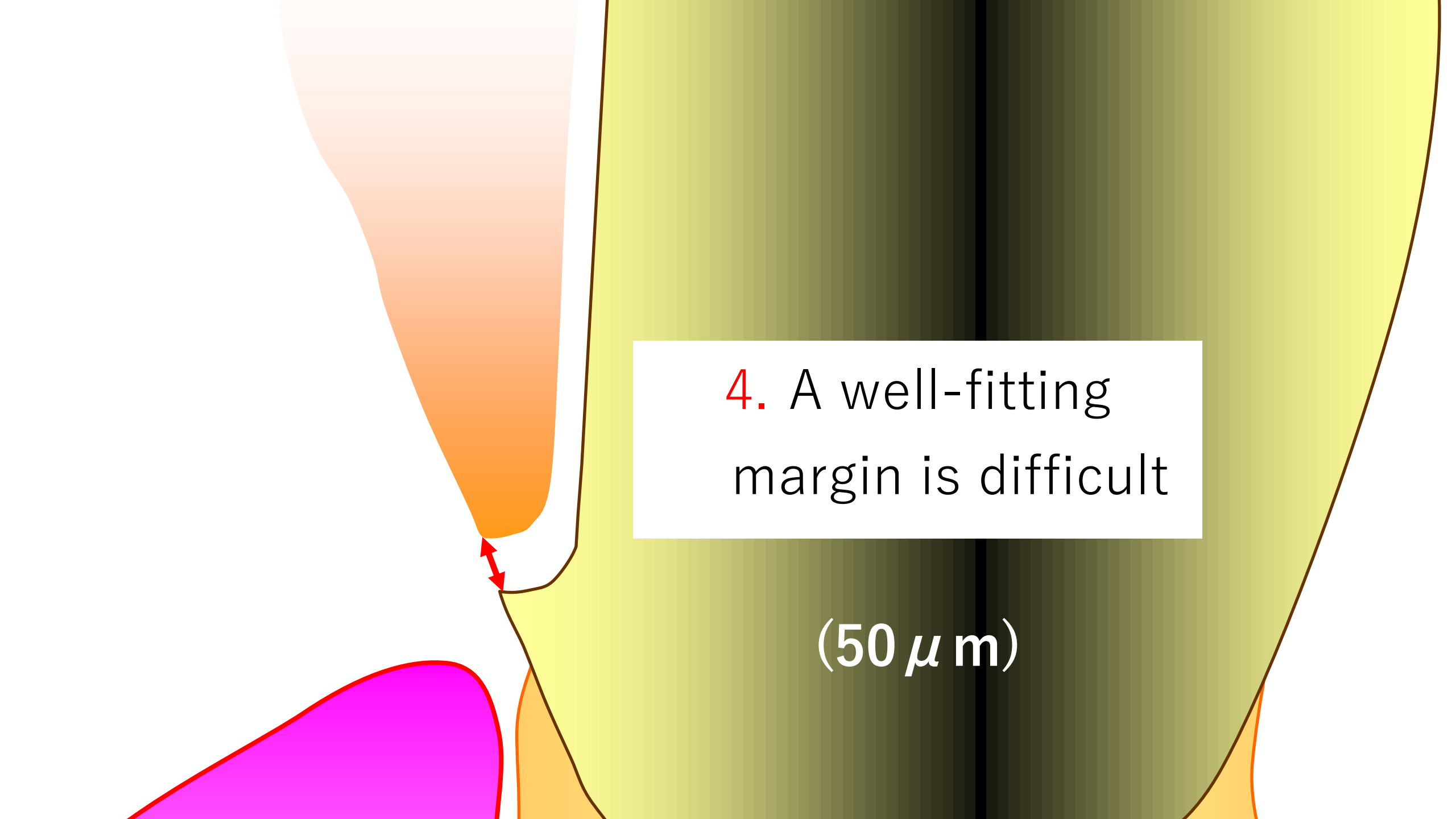


1.Reduced strength.
The brittle ceramic is
subjected to fracture
(Half Moon)

2. Not conservative compared to partial coverage restoration

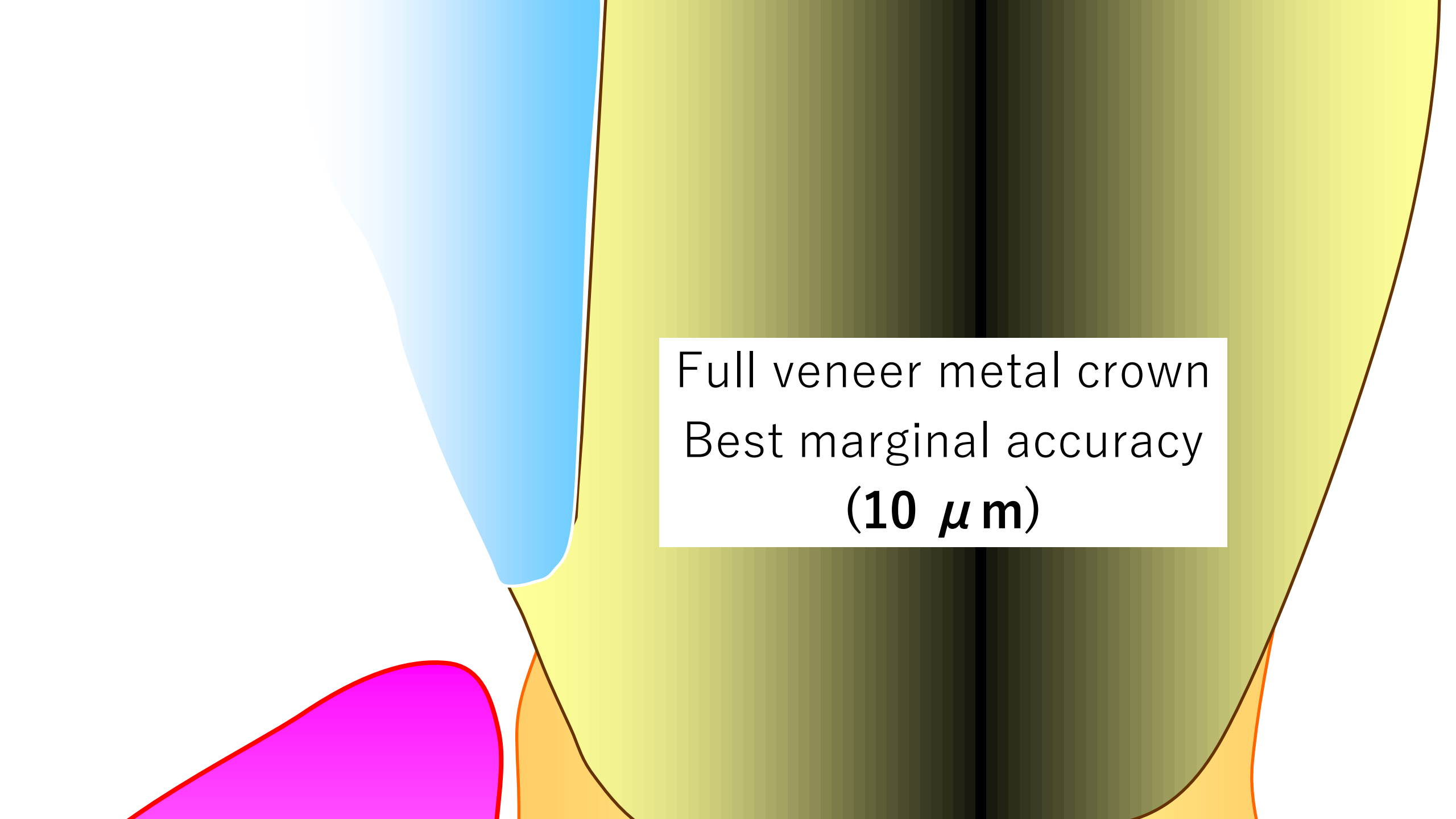


3. Wear of
opposing
teeth



4. A well-fitting
margin is difficult

(50 μm)



Full veneer metal crown
Best marginal accuracy
(10 μ m)

5. Not allow vitality test.
6. Very technique sensitive

Indications

1. High aesthetic requirement where a more conservative restoration is inadequate



Before



After

2. Large proximal or facial defects that **can't** be restored with composite resin



3. Fractured
anterior teeth
involving more
than 1/3 inciso-
gingivally



4. Discolored anterior teeth





Before



After

5. Mal-formed
teeth



6. Mal-posed or rotated teeth



7. As an individual restoration



8. As a bridge retainer

Indications

9. Favorable distribution of occlusal load

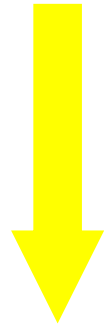
Contraindications



1. When a more
conservative
restoration
can be used

Composite
Resin

2. Unfavorable distribution of occlusal loads;
**(deep bite, edge to edge and
bruxism)**



**Half Moon
Fracture**



2. Unfavorable distribution of occlusal loads; (**Deep Bite**)



Normal Bite



Edge to Edge

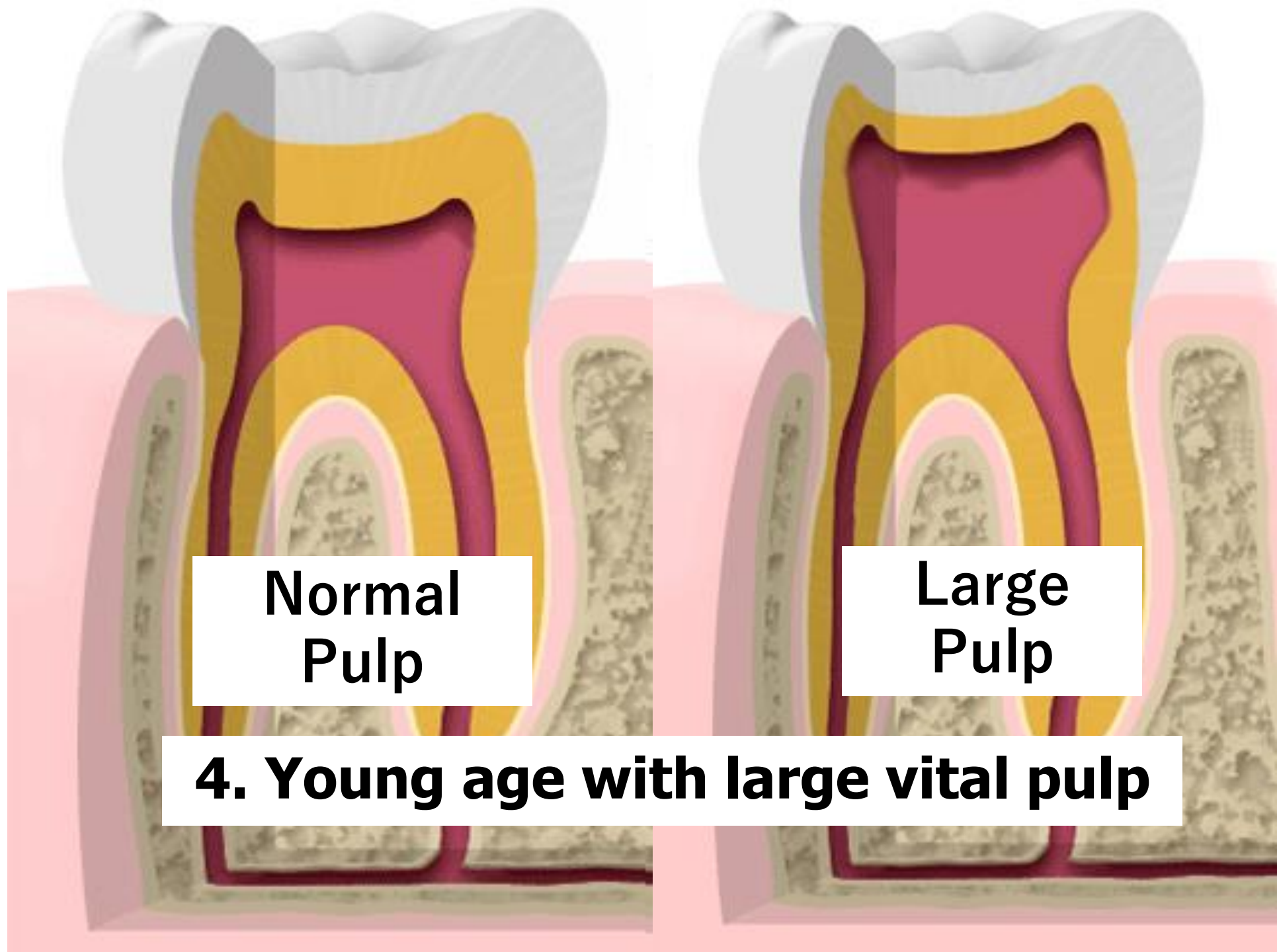
2. Unfavorable distribution of occlusal loads; (**Edge to Edge**)



2. Unfavorable
distribution of occlusal
loads; (**bruxism**)



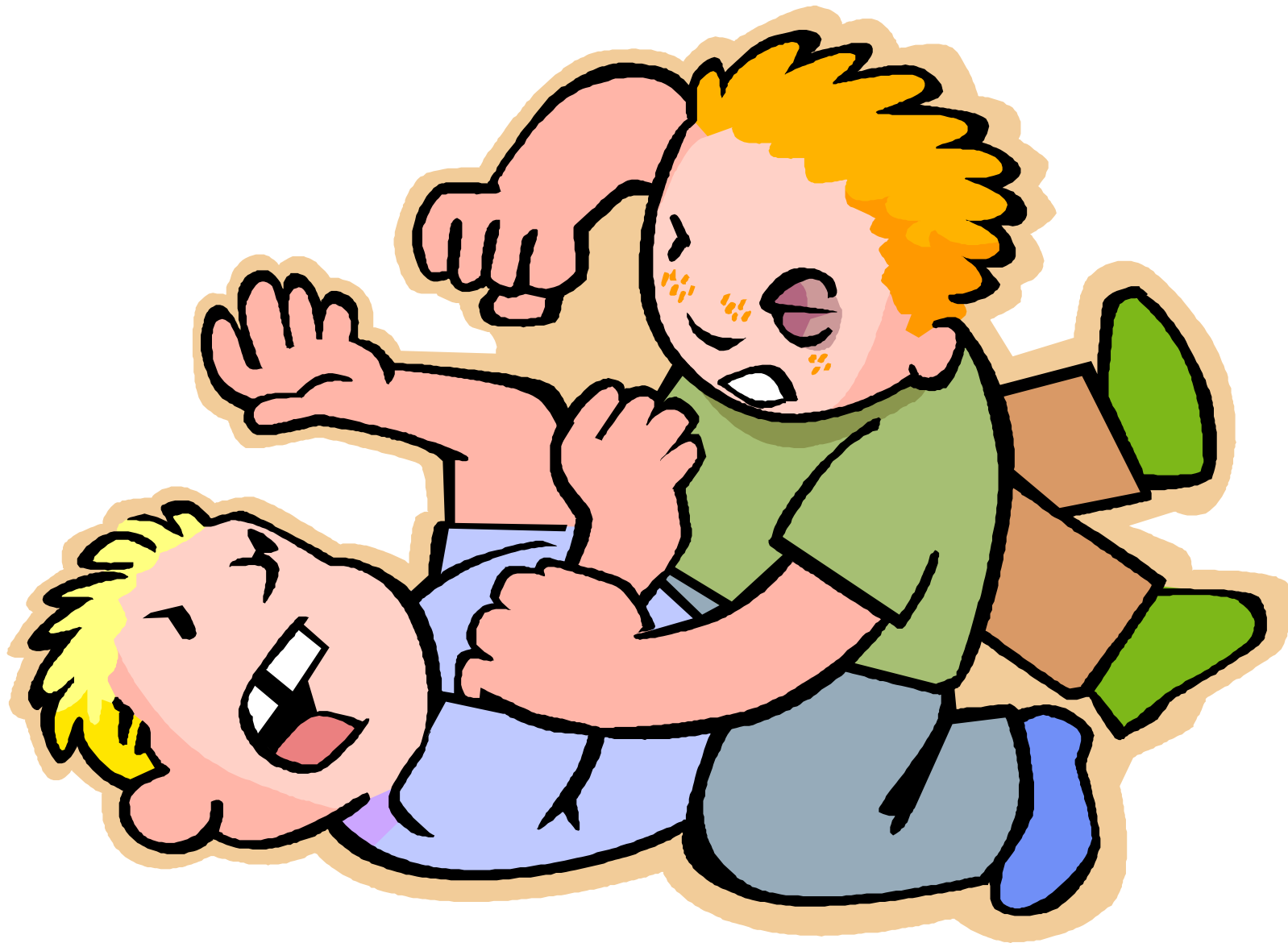
3. Short clinical crowns



**Normal
Pulp**

**Large
Pulp**

4. Young age with large vital pulp



**4. Young careless
patients**



5. Individuals engaged in violent sports or hard line jobs



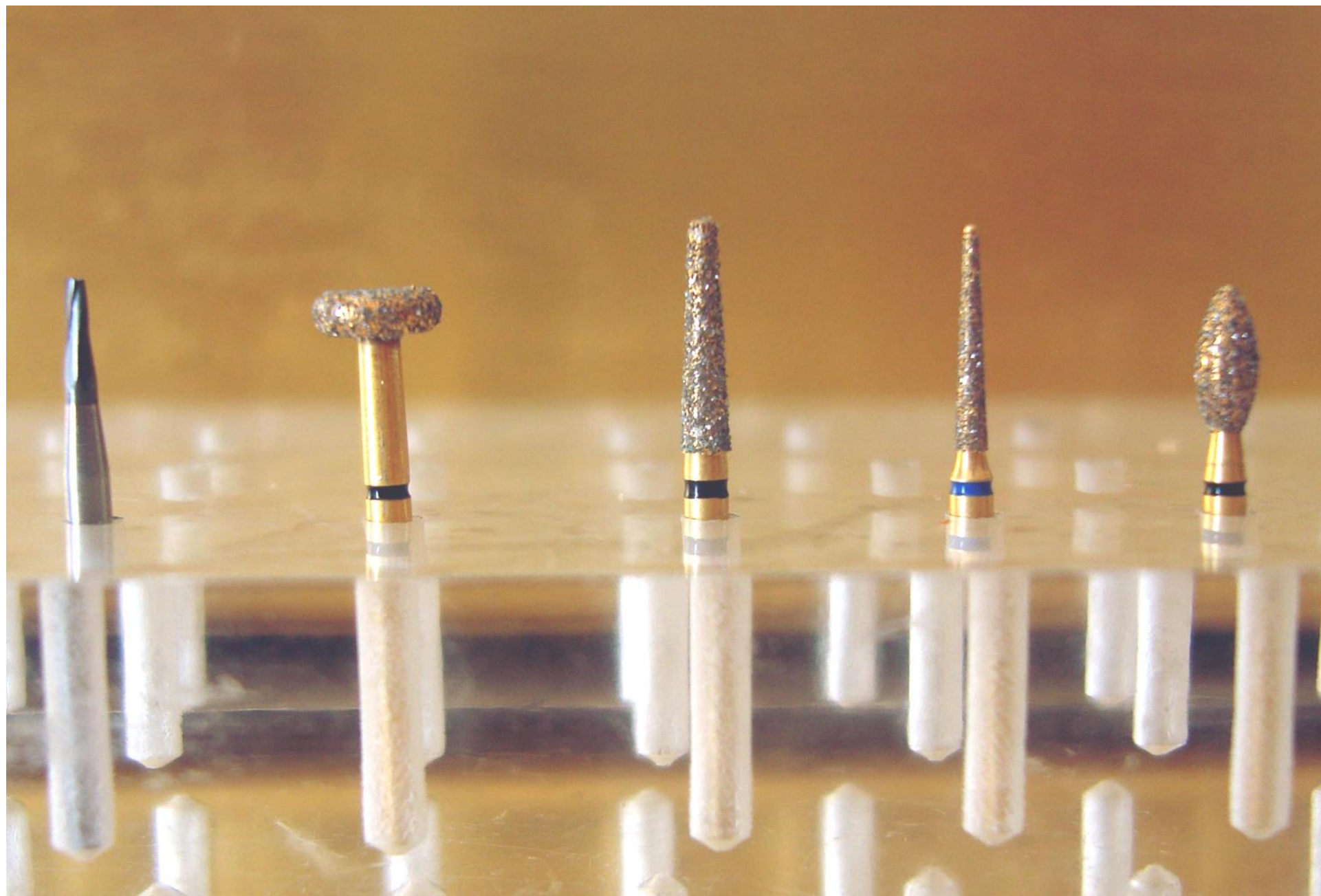
6. High caries index

7. When maximum strength is need

Preparation of All Ceramic Crown

Armamentarium (tools used):

1. Flat end tapered diamond stone.
2. Needle diamond stone.
3. Football or olive diamond stone.
4. Round edge wheel diamond stone.
5. Finishing stones and carbides.



Preparation Steps:

- 1. Incisal Reduction;**
 - i. Placement of incisal depth grooves.
 - ii. Incisal reduction.
- 2. Facial Reduction.**
- 3. Opening the contact.**
- 4. Inter-proximal Reduction.**
- 5. Lingual Reduction.**
- 6. Finishing of the Preparation and Marginal Placement.**

Preparation Steps:

1. Incisal Reduction;

- i. Placement of incisal depth grooves.
- ii. Incisal reduction.

i. Placement of Incisal Depth Grooves.

- Three depth orientation grooves, **1.8 mm** deep, are placed on the incisal edge for incisal reduction.



ii. Incisal Reduction.

- A **round edge wheel** diamond stone is used to remove tooth structure in between the depth grooves
- The reduced incisal edge should be **45°** inclined **palatally**
- A small lip of enamel should be left incisally, to prevent injury of adjacent teeth. It will be removed during proximal reduction



Preparation Steps:

2. Facial Reduction.

- A **flat end taper** diamond stone is used to remove **1.2-1.5mm** of tooth structure and form **1mm** wide **shoulder** finish line

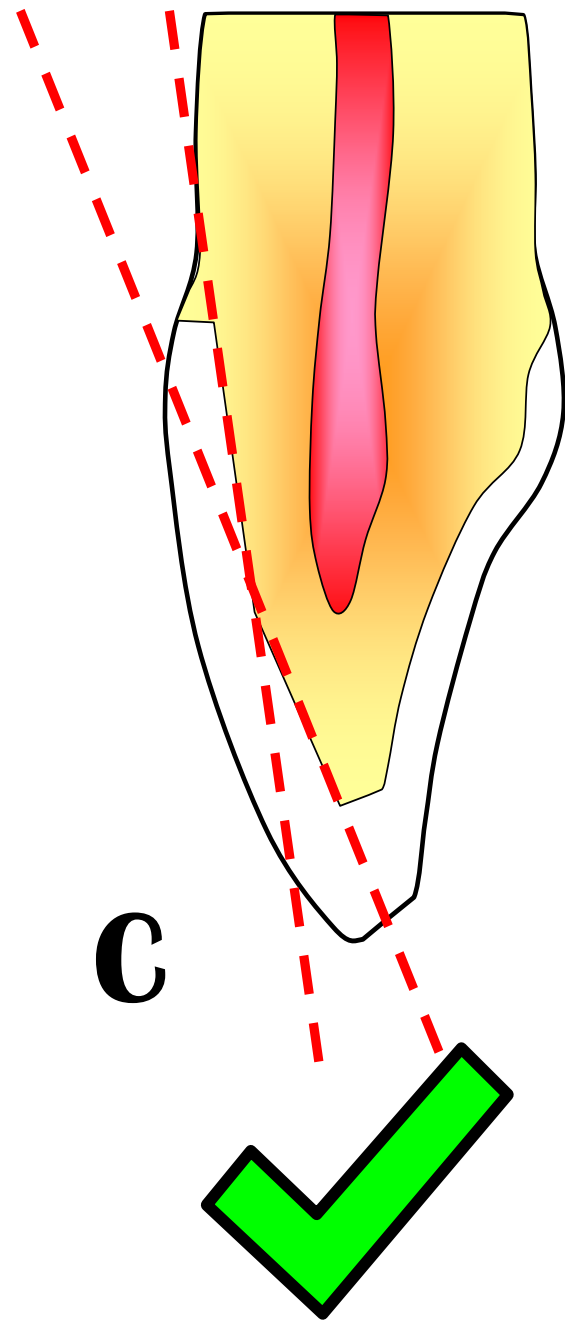
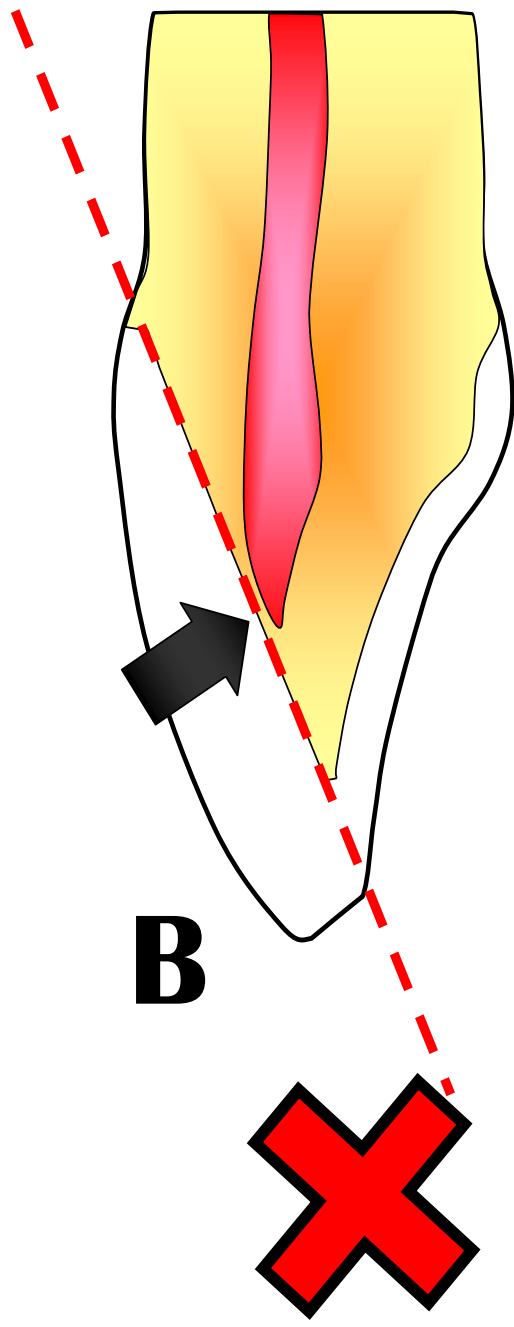
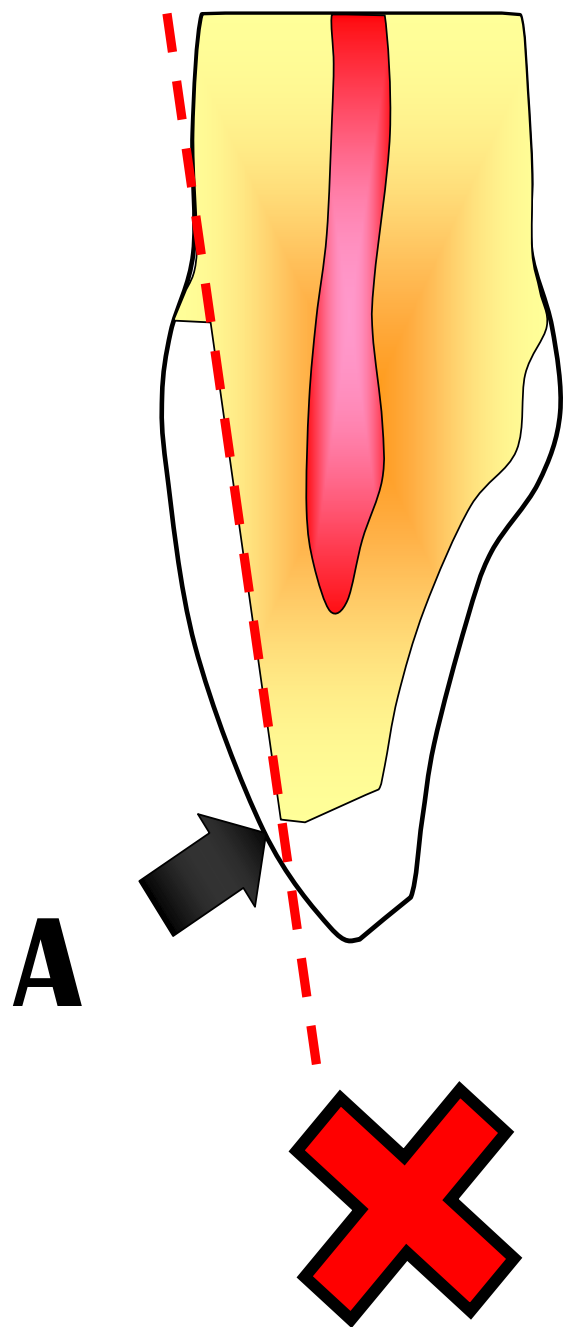
Preparation Steps:

2. Facial Reduction.

- Preparation is done in **two planes**
 - **Gingival 1/3** being parallel to the proposed path of insertion or long axis of the tooth
 - **Incisal 2/3** being parallel to the incisal 2/3 of the tooth contour

Common mistake in facial surface reduction

- A. One plane reduction parallel with the path of insertion may result in insufficient space for porcelain in the incisal 1/3 of the tooth.
- B. One plane reduction parallel with incisal 2/3, will endanger the pulp entity and produce over-tapered restoration.



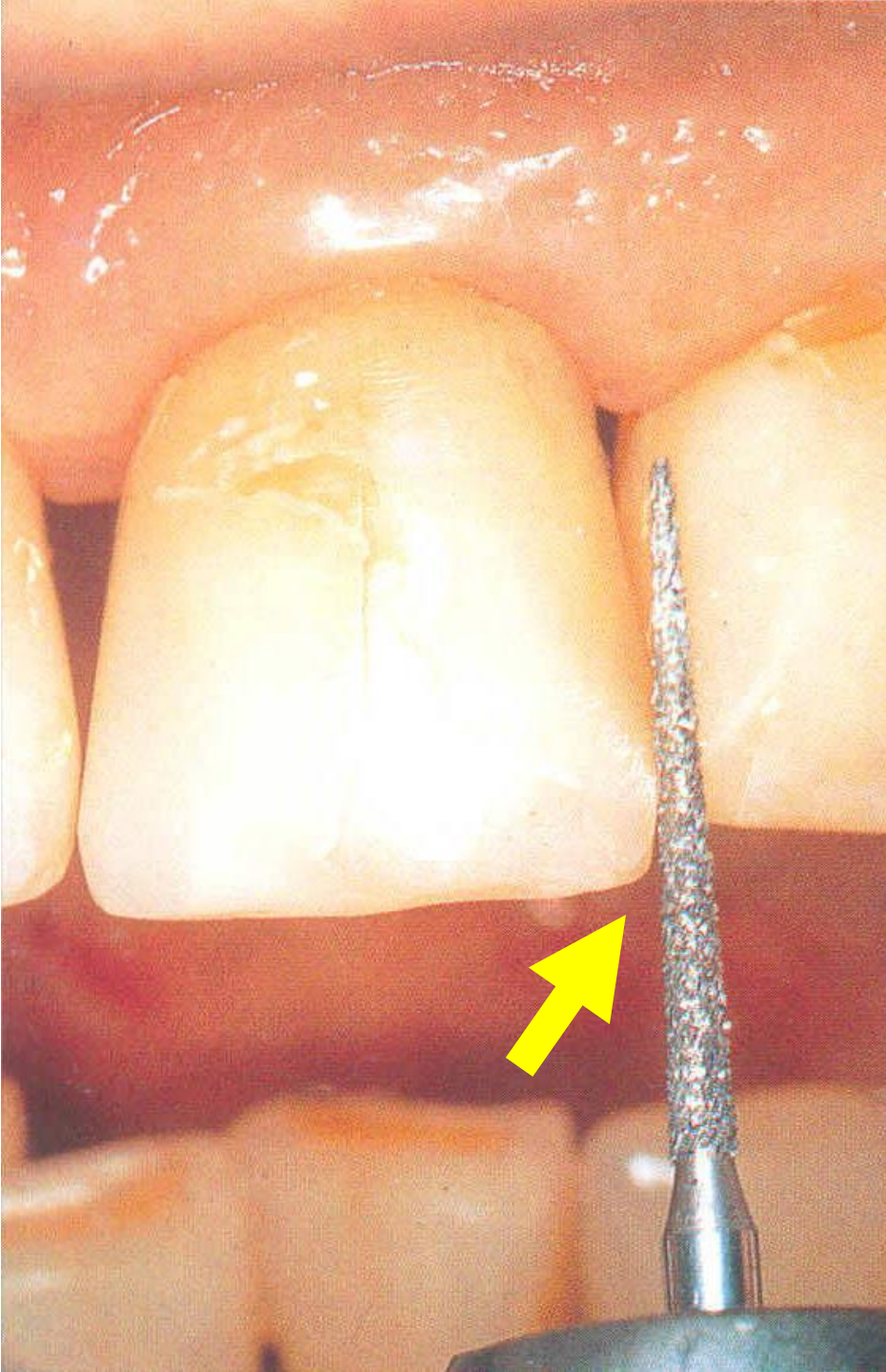


**Under reduction facially leads to
over-contoured restoration**

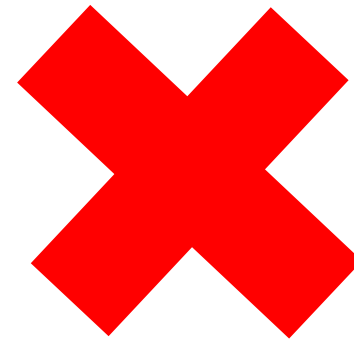
Preparation Steps:

3. Opening the contact.

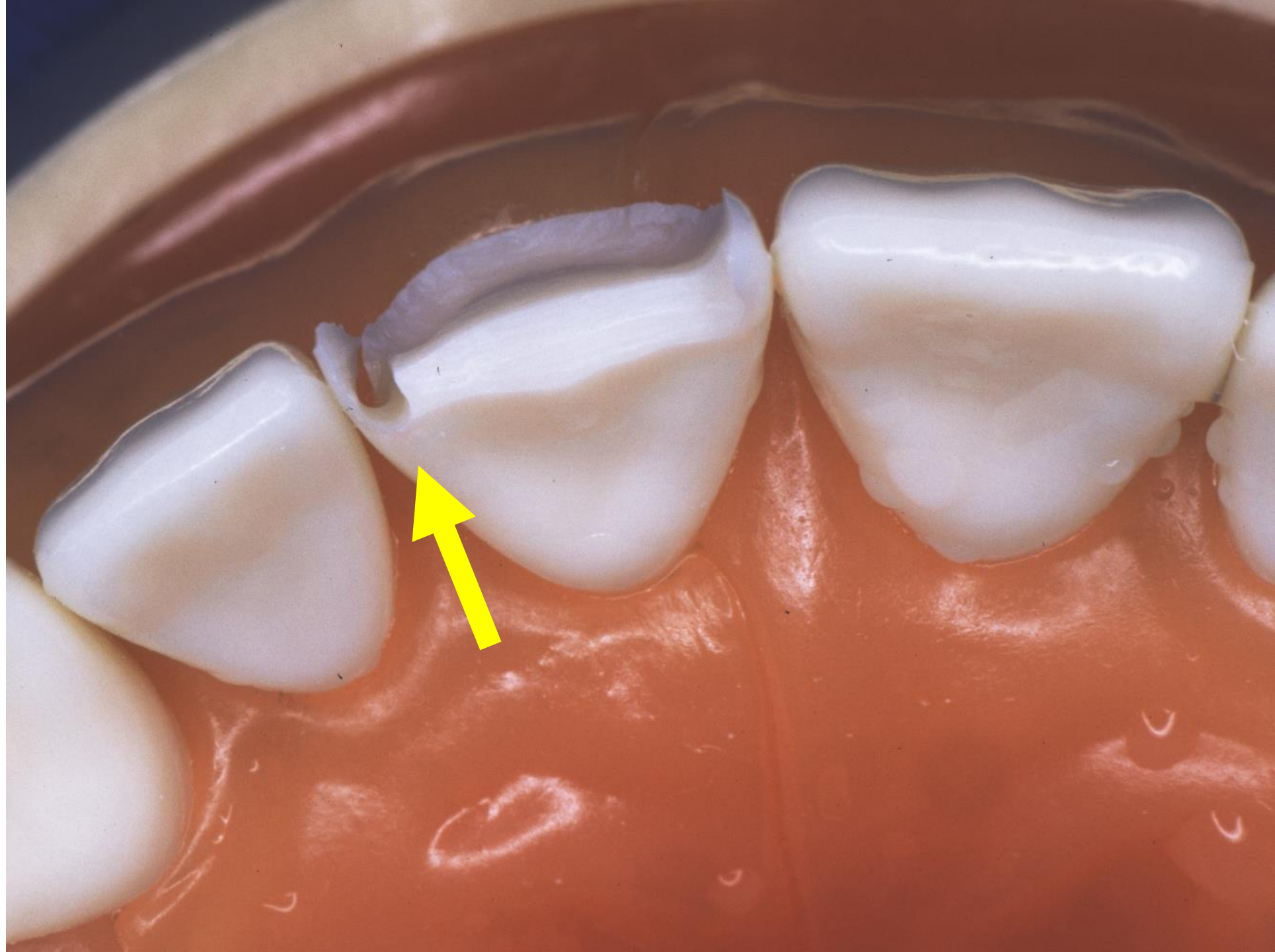
- A **needle diamond stone** is placed 1mm on the facial surface away from contact area to create a proximal lip. This protects the adjacent tooth from being injured during preparation.



Wrong positioning of the needle stone in the contact area leads to injury of the adjacent tooth.









Preparation Steps:

4. Inter-proximal Reduction.

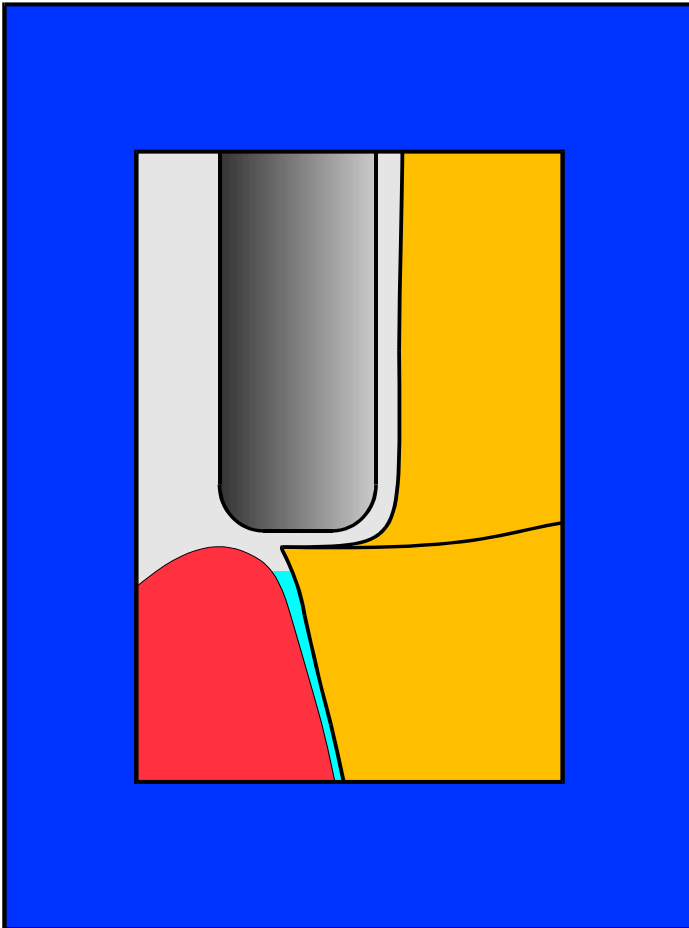
- A **flat end taper** diamond stone is used to remove **1.2 mm** of tooth structure and form **1mm** wide **shoulder** finish line
- Preparation should follow tooth contour tapering lingually



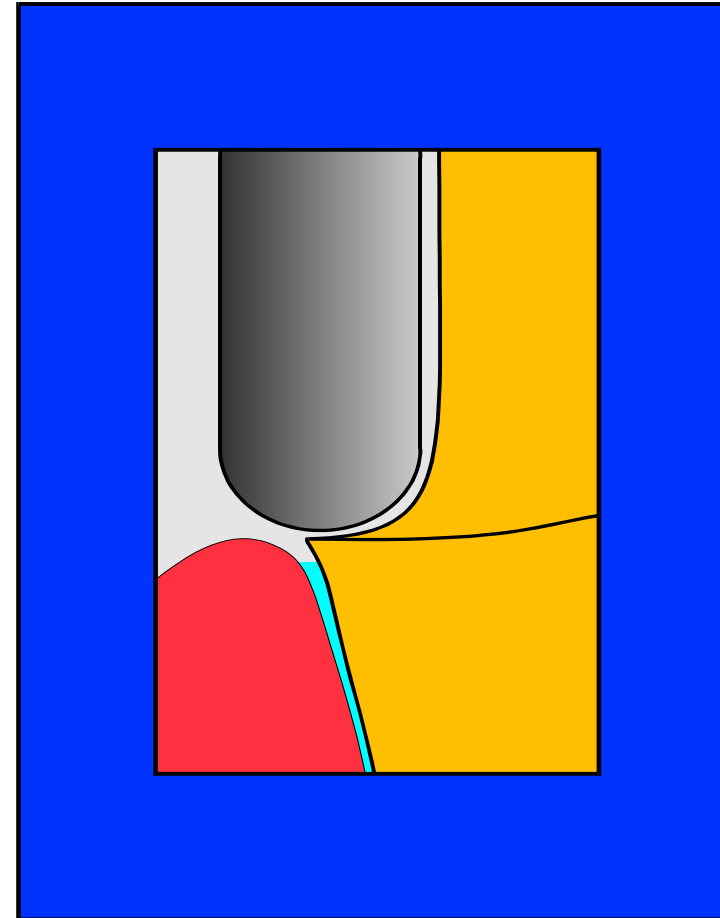


Recommended finish lines

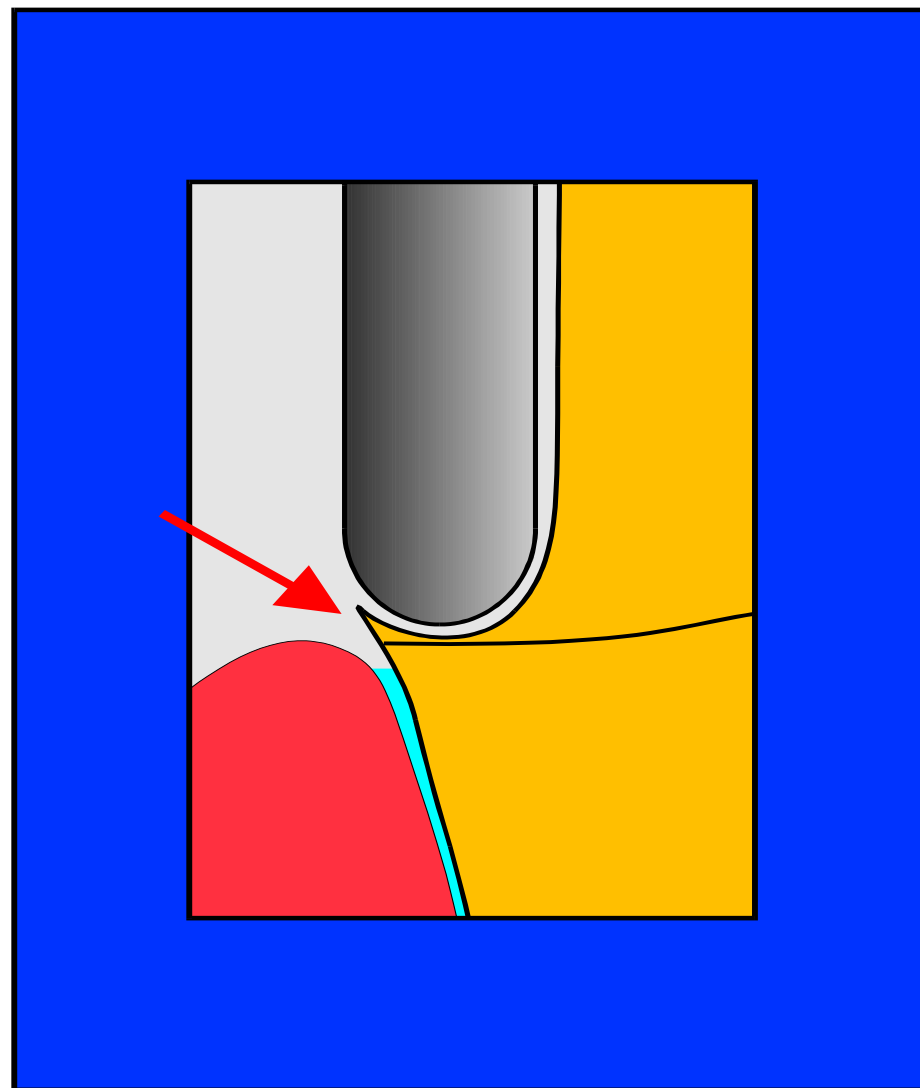
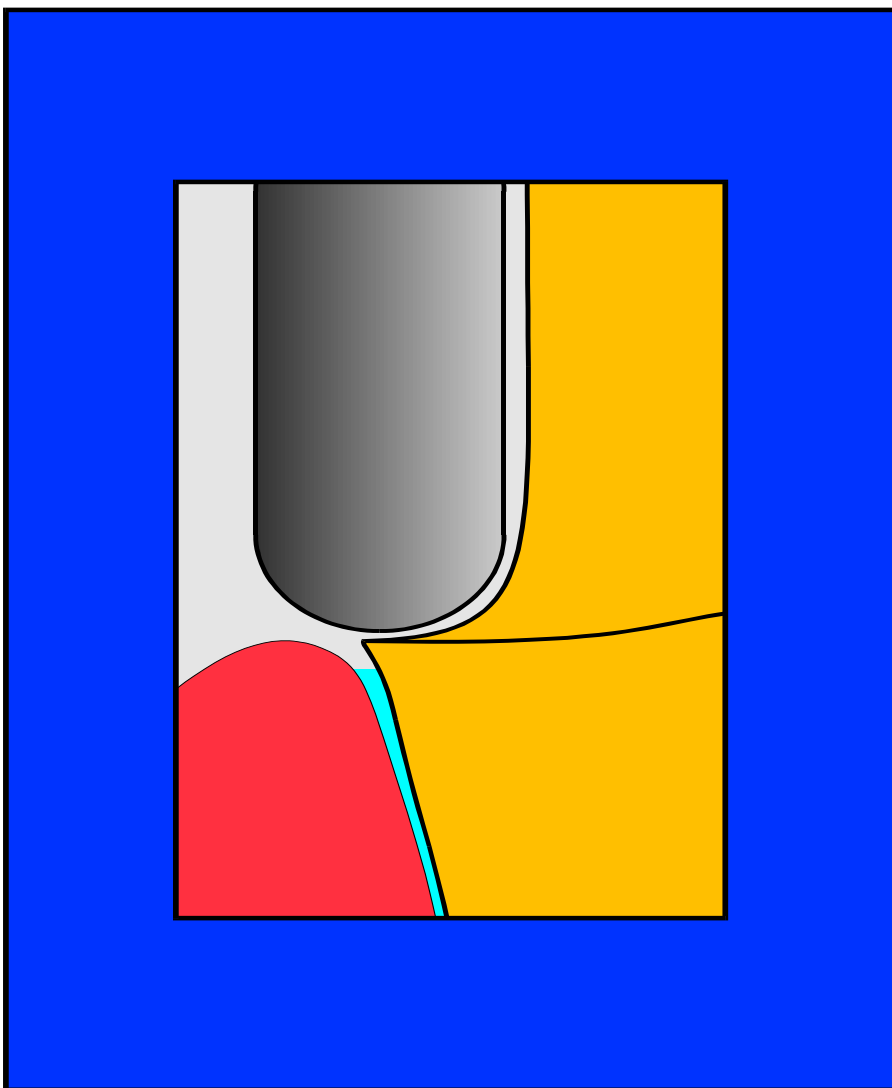
Modified Shoulder



Deep Chamfer



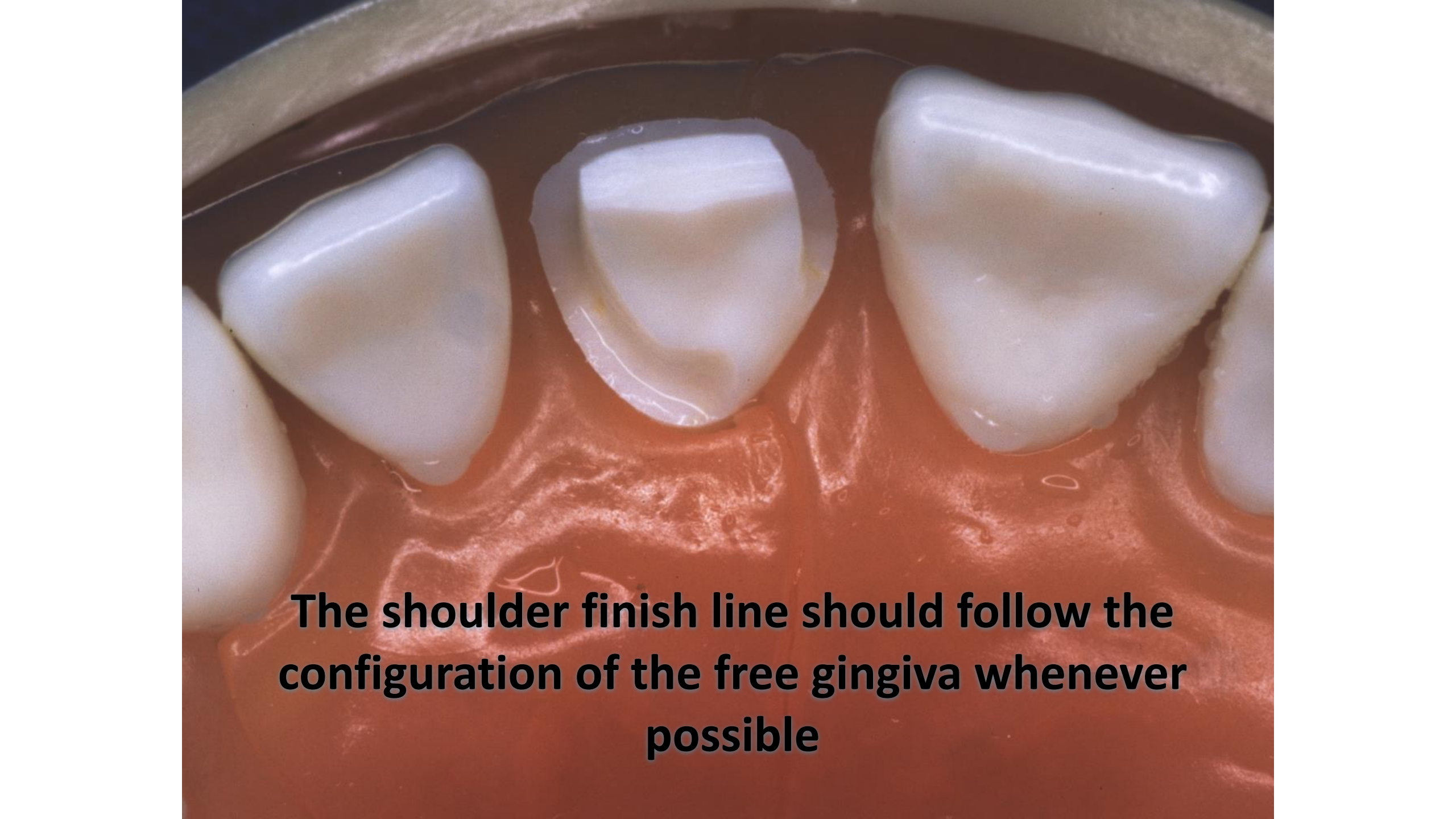
Do not create a lip on the margin



Preparation Steps:

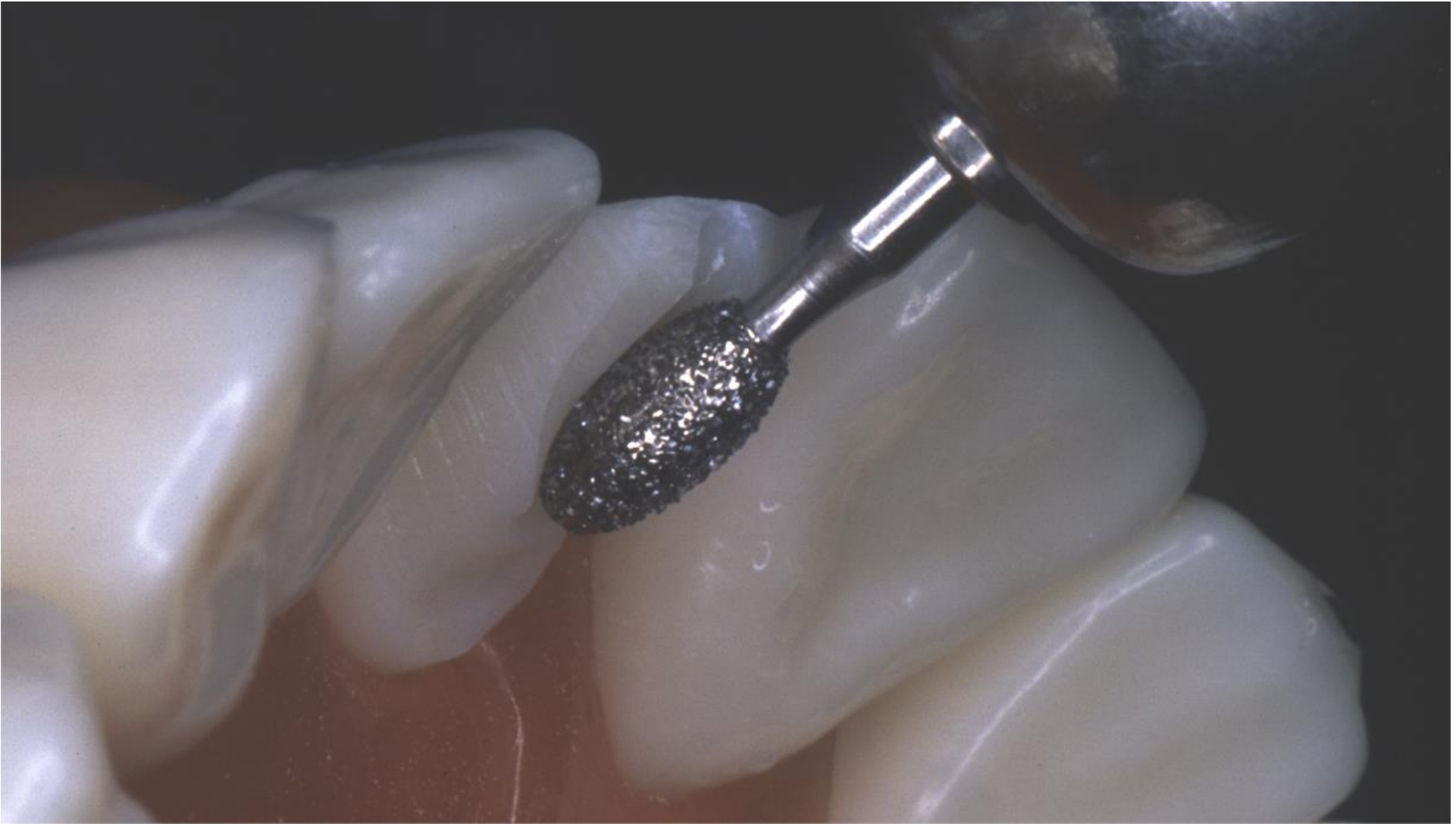
2. Lingual Reduction.

- Preparation is done in **two planes**
 - **Cingulum preparation:** parallel to the path of insertion or long axis of the tooth using **flat end taper** diamond stone
 - **Fossa:** following tooth concavity using **football diamond** stone

A close-up photograph of a dental crown being prepared on a wax block. The crown is white and has a shoulder finish line. The wax block is a reddish-brown color. The text is overlaid on the bottom half of the image.

The shoulder finish line should follow the configuration of the free gingiva whenever possible

**Lingual fossa is reduced using football
diamond stone**





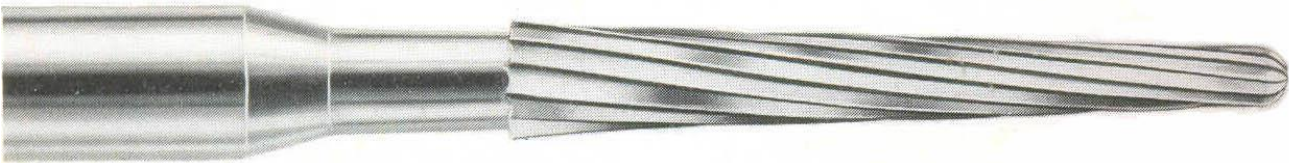
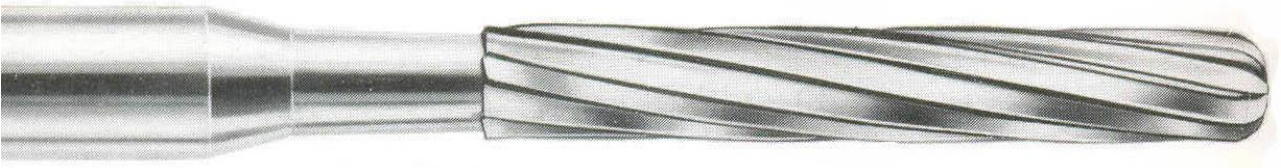


Preparation Steps:

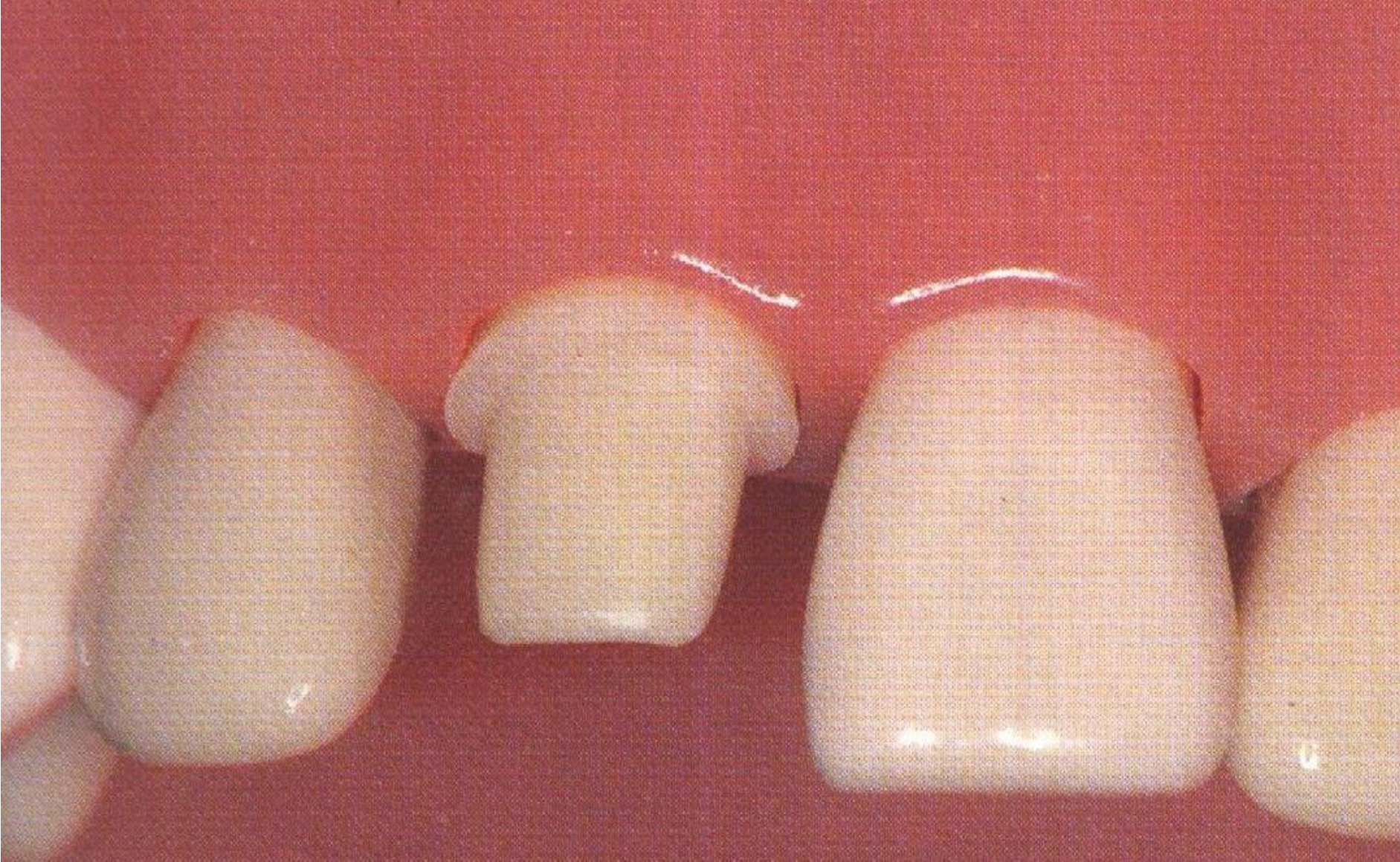
6. Finishing of the Preparation and Marginal Placement.

- Rounding all point and line angles using **fine grit round end taper diamond** stone.
- The completed **rounded shoulder** should be **1mm** wide, smooth, continuous and without any irregularity.





Special burs of
large diameter
and extra length
are less likely to
nick surface of
t h e t o o t h



Completed All ceramic crown preparation on a maxillary central incisor



A lingual view of the same preparation.

Notice the absence of sharp line angles on the lingual and incisal aspects of the tooth preparation

How to evaluate your reduction?



Criteria of Excellent Reduction

1. Incisal Reduction

- ✓ Excellent incisal clearance (**1.5-2 mm**)
- ✓ Incisal reduction is **45°** inclination

➡ Criteria of Excellent Reduction

2. Proper Axial Reduction

- ✓ Labial surface done in two planes; incisal 2/3 and cervical (gingival) 1/3
- ✓ Cingulum parallel to the reduced cervical 1/3 of labial surface
- ✓ No undercut or over-convergence
- ✓ Proper axial 6° taper
- ✓ Smooth axial surfaces reduction



Criteria of Excellent Reduction

3. Finish line

- ✓ **Rounded SHOULDER or HEAVY CHAMFER** finish line with uniform thickness (1.0mm)
- ✓ Continuous, smooth not irregular
- ✓ Following cervical line

4. Preparation Finishing

- ✓ Rounded point and line angles





Thank
You!